

Work Order ID 51559

August 26, 2009 8:28:40 AM



Page 1

Item ID: D022-716-011

Accept



Setup Start



Revision ID: A

Item Name: R22 Cargo Mirror

Stop



Start Date: 8/26/09 Start Qty: 2.00

Required Date: 8/31/09 Req'd Qty: 2.00



Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date: 09-09-24

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D3244

Rev A

IIN-D022-716

Rev A

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD022-716-011

110

0.00



SHEAR

Waterjet

Memo

0.00

FLOW CNC Waterjet

1-Cut as per Dwg D3244-1

Dwg Rev: A

Prog Rev: 2

grain along 10.303

2-Deburr if necessary

CHG002

8/21/08

003

PER ECN 08-548

D2011 Rev. G

D2829 Rev. B

HJ for CL 09/11/10

AB 9-10-14

④

Work Order ID 51559

August 26, 2009 8:28:40 AM

Page 2

Item ID: D022-716-011

Revision ID: A

Item Name: R22 Cargo Mirror

Start Date: 8/26/09 Start Qty: 2.00

Required Date: 8/31/09 Req'd Qty: 2.00

Reference:

Approvals: Process Plan: Date:

QC: Date:

Accept



Setup Start



Stop



Cust Item ID:

Customer:

Tooling:

Date:

Run Start



Stop



SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

120

QC2- Inspect parts off machine FAI/FAIB

0.00



QC

Memo

0.00

Quality Control

HB 9-10-14

130

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

2) 8/21/14

(49)

/

140

Small Fab

0.00



Small Fab

Memo

0.00

Small Fab

1- Deburr if necessary

W/A
5

Work Order ID 51559

August 26, 2009 8:28:40 AM



Item ID: D022-716-011

Accept



Setup Start



Revision ID: A

Stop



Item Name: R22 Cargo Mirror

Start Date: 8/26/09 Start Qty: 2.00



Cust Item ID:

Required Date: 8/31/09 Req'd Qty: 2.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150



Brake NC

Brake NC

NC BRAKE

Memo

Bend as per Dwg D3244

0.00

0.00

8B 09/10/02

2

2

PD

160



QC

Quality Control

QC6- Inspect dimensions to drawing

Memo

0.00

0.00

2) S 09/11/02

(X2)

(X2)

Handwritten signature

185 09/11/03



Powdercoat

Powder Coating

Black Sandtex(Ref:4.3.5.7) per QSI005 4.3

Memo

START TIME: 10:00AM
OVEN TEMPERATURE: 320°F
FINISH TIME: 10:30AM

0.00

0.00

2) 09/11/05

(X2)

(X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D022-716-011 PAR #: _____ Fault Category: Small Spots NCR: (Yes) No DQA: [Signature] Date: 09-11-18

Resolution: Scrap Disposition: Scrap QA: N/C Closed: [Signature] Date: 09-11-18

NCR: <u>51559</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
<u>09/11/02</u>	<u>150</u>	<u>2 part are scrap</u> <u>1 part moved it's out</u> <u>of Tolerance + 1</u> <u>part crack</u> <u>EC Process</u>	<u>[Signature]</u> <u>[Signature]</u>	<u>Destroy</u> <u>no replace</u>	<u>[Signature]</u> <u>09/11/02</u>	<u>[Signature]</u> <u>09/11/02</u>	<u>[Signature]</u> <u>[Signature]</u>	<u>[Signature]</u> <u>09.11.02</u>

NOTE: Date & initial all entries

Work Order ID 51559

August 26, 2009 8:28:40 AM

Page 4

Item ID: D022-716-011

Accept

Revision ID: A

Item Name: R22 Cargo Mirror

Setup Start

Stop

Start Date: 8/26/09 Start Qty: 2.00

Required Date: 8/31/09 Req'd Qty: 2.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

Stop

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180 175 09/11/03



HandFinish

Hand Finishing

Chemical Conversion Coat per QS1005 4.1

HandFinishing

Memo

0.00

0.00

190



QC

Quality Control

QC3- Inspect Part Finish

Memo

0.00

0.00

200



Small Fab

Small Fab

Small Fab

Memo

Assemble as per Dwg D3244 and ~~HN D022-716~~

0.00

0.00



09-11-3

~~09-11-03~~
~~09-11-06~~

K2

09/11/16 (2)

09/11/16 (2)

Work Order ID 51559

August 26, 2009 8:28:40 AM

Page 5

Item ID: D022-716-011

Accept

Revision ID: A

Item Name: R22 Cargo Mirror

Setup Start

Stop

Start Date: 8/26/09 Start Qty: 2.00

Required Date: 8/31/09 Req'd Qty: 2.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

Stop

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

220

Pick Kit

0.00

Packaging

Memo

0.00

Packaging

230

QC4- 100% Inspect kits for completeness

0.00

QC

Memo

0.00

Quality Control



⇒ 5 or 1/16

(72)

9/1/16

(24)

⇒ 8 or 1/18

(42)

Work Order ID 51559

August 26, 2009 8:28:40 AM

Page 6

Item ID: D022-716-011

Accept

Revision ID: A

Item Name: R22 Cargo Mirror

Start Date: 8/26/09 Start Qty: 2.00

Required Date: 8/31/09 Req'd Qty: 2.00

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

240



Packaging

Packaging

Packaging

Memo

Identify and pack for shipping as per PPP D022-716-011

Location: *REV D*

0.00

0.00

250



QC

Quality Control

QC21- Final Inspection - Work Order Release

Memo

0.00

0.00

8/29/11/18 2

09/11/18 18
18/09-11-18 2

Picklist Print

August 26, 2009 8:28:39 AM

Page 1

4

Work Order ID: 51559

Parent Item: D022-716-011RevA

Parent Item Name: R22 Cargo Mirror

Comments:

Start Date: 8/26/09

Required Date: 8/31/09

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
M6061T6S.063		Purchased	No			110	sf	120.1891	1.0000	2.000		



6061-T6 .063 Sheet

18910-14

Warehouse Loc Qty Loc Code
Location

Main Warehouse

MAT

120.1891211

109463

-0.0223

110551

120.211421

FE-032-EF

Purchased

No

200

Each

137.0000

8.0000



Inserts

110551

8/30/09 11/16

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST

137

108546

37

110836

100

D2011-101RevG

41

Manufactured

No

200

Each

13.0000

2.0000



6" Mirror

9/11/16

QV SP

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST

13

22179

0

43793

11

47592

1

51351

1

2 X 540

Picklist Print

August 26, 2009 8:28:40 AM

Page 2

Work Order ID: 51559

Parent Item: D022-716-011RevA

Parent Item Name: R22 Cargo Mirror

Comments:

Start Date: 8/26/09

Required Date: 8/31/09

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D1048RevA		Manufactured	No			200	Each	41.0000	4.0000			
Saddle												

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST 41

45382 41

200 Each 29.0000 4.0000

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST 29

39919 9

45810 20

200 Each 594.0000 8.0000

D1049RevA

Manufactured No

Saddle

AN526C1032R10

Purchased No

Screw

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST 594

108062 135

108167 35

110049 424

August 26, 2009 8:28:40 AM

Shop Packet Print

Page 2

Picklist Print

August 26, 2009 8:28:40 AM

Page 3

Work Order ID: 51559

Parent Item: D022-716-011RevA

Parent Item Name: R22 Cargo Mirror

Comments:

Start Date: 8/26/09

Required Date: 8/31/09

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2010-104RevD		Manufactured	No			200	Each	17.0000	2.0000			



Mirror Arm 369/500

9/11/10 (2X) SP

Warehouse Loc Qty Loc Code
Location

Main Warehouse

ST 17

24969 0

40046 17

AN960JD10L

Purchased

No

220

Each

6,677.000 8.0000



Washer

2X SD

9/11/10 (2X) SP

Warehouse Loc Qty Loc Code
Location

Main Warehouse

FP -2

109632 -2

Main Warehouse

ST 6679

101291 16

104885 153

105793 236

109632 1274

110985 5000

8X SD

August 26, 2009 8:28:40 AM

Shop Packet Print

Page 3

Picklist Print

August 26, 2009 8:28:40 AM

Page 4

Work Order ID: 51559

Parent Item: D022-716-011RevA

Parent Item Name: R22 Cargo Mirror

Comments:

Start Date: 8/26/09

Required Date: 8/31/09

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
ALS4-1032-130		Purchased	No			220	Each	6,077.000	8.0000			

Sp



Insert

9/1/10 sil

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

6077

110511

6077

220

Each

2,210.000

8.0000

8x50

9/1/10 20 50

AN3-4A

Purchased

No

Sp



Bolt

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

2210

103915

151

104214

500

104291

300

104322

200

104374

200

104625

300

104817

559

8x50

August 26, 2009 8:28:40 AM

Shop Packet Print

Page 4

DART AEROSPACE LTD		Work Order: S1559
Description: R22 CARGO MIRROR		Part Number: D 3244-1
Inspection Dwg: D3244-1 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø .201	+ .005 - .001	.204	✗			
Ø .290	+ .006 - .001	.290	✗			
.500	± .010	.502	✗			
.750	± .010	.753	✗			
5.360	± .010	5.364	✗			
5.810	± .010	5.815	✗			
6.560	± .010	6.567	✗			
3.281	± .010	3.286	✗			
4.464	± .010	4.462	✗			
1.375	± .010	1.380	✗			
9.803	± .010	9.803	✗			
10.303	± .010	10.295	✗			
7.022	± .010	7.021	✗			
2.906	± .010	2.906	✗			
7.391	± .010	7.391	✗			
.063	± .010	.062	✗			

Measured by: UB	Audited by: S	Prototype Approval: N/A
Date: 9-10-14	Date: 02/10/14	Date: N/A

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/JLM	

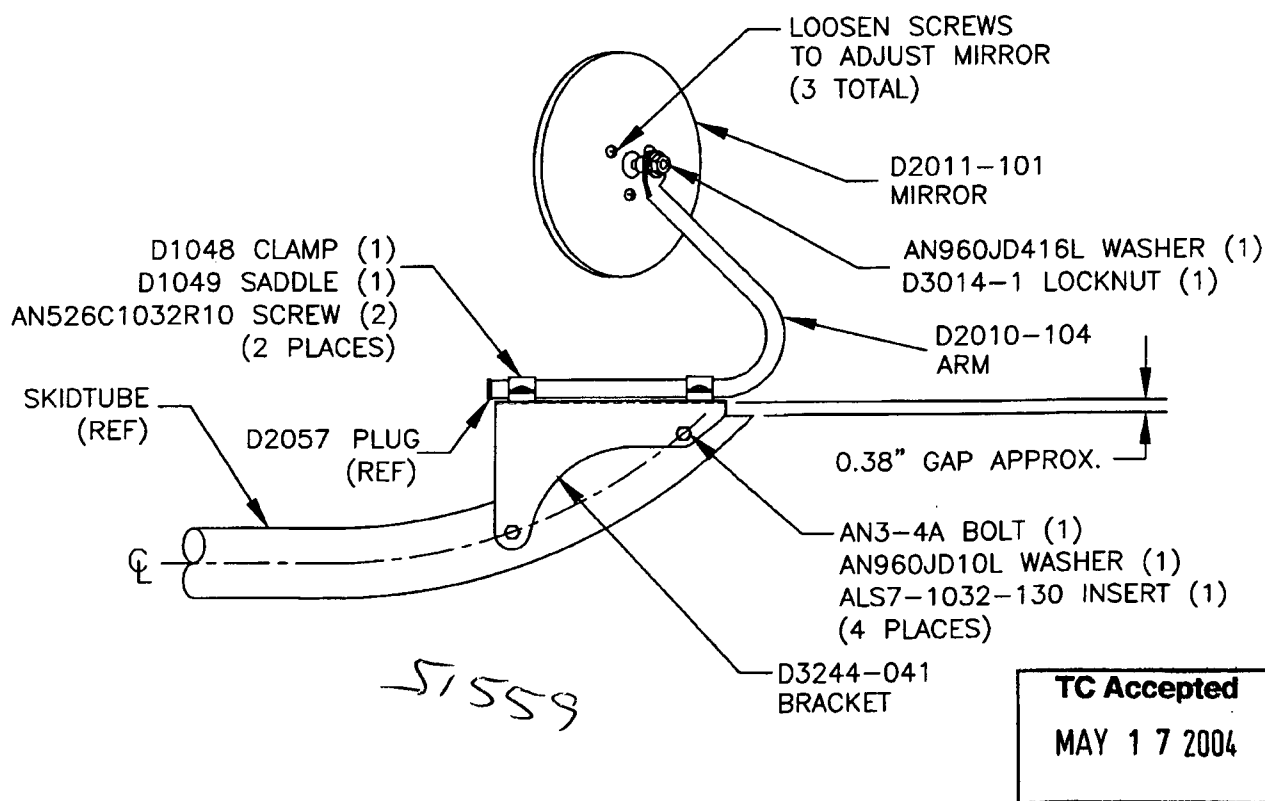
P/O D022-716-011



THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

CHAPTER 32 – LANDING GEAR (32-00-00)**32.1 CARGO MIRROR INSTALLATION****REFERENCE ONLY**

- 32.1.1 To install the Dart D022-716-011 Cargo Mirror on the R22 skidtube, refer to Installation Instructions IIN-D022-716.
- 32.1.2 If the mirror has been removed per section 32.2, the mirror should be re-installed by lining up the holes in the D3244-041 Bracket with the existing inserts in the skidtube and installing the D3244-041 Bracket using the AN3-4A bolts. The bolts should be resealed with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant during re-installation. The bolts should be installed to a maximum torque of 25 in lb (3 N m).
- 32.1.3 Ensure the remaining hardware is installed per Figure 32-1 as required. Adjust the angle of the D2010-104 arm and tighten the AN526C1032R10 screws to secure arm.
- 32.1.4 To adjust the mirror: loosen (DO NOT REMOVE) the three adjustment screws shown in Figure 32-1, reposition the mirror, then tighten the screws.

**Figure 32-1: Cargo Mirror Installation (side view of right-hand skidtube)**

• COPYRIGHT © 2004 BY DART AEROSPACE LTD. •
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

32-00-00

2. GENERAL NOTES

COMPATIBILITY

Compatibility of this installation with the aircraft is the **responsibility of the installer**. Ensure that this installation does not conflict with a previous modification.

CONTINUING AIRWORTHINESS

This installation should be maintained in accordance with the Instructions for Continued Airworthiness ICA-D022-716.

3. INSTALLATION INSTRUCTIONS

To install the Dart Cargo Mirror Installation on the R22 skidtube:

1. Locate the D3244-041 Bracket with approximately 0.38" (10mm) space between the top of the skidtube and the bracket, as shown in Figure 2. Transfer drill the 4 holes from the bracket to the centerline of skidtube and enlarge to 10/64" (Ø0.297"). Deburr holes and wet install ALS7-1032-130 inserts using MIL-P-85582 or MIL-P-23377 primer.
2. Install the D3244-041 Bracket on the skidtube using the AN3 hardware. The bolts should be sealed with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant before installing as per Figure 2.
3. Install remaining hardware per Figure 2 as required. Adjust the angle of the D2010-104 Arm and tighten the AN526C1032R10 screws to secure arm.
4. To adjust the mirror: loosen (DO NOT REMOVE) the three adjustment screws shown in Figure 2, reposition the mirror, then tighten the screws.

4. WEIGHT AND BALANCE

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
D022-716-011 Cargo Mirror Installation	1.2 lb 0.54 kg	37.5 in 0.95 m	45.0 lb-kG 0.51 m-kG	27.0 in 0.68 m	32.4 in-lb 0.37 m-kG

5. PARTS LIST

Qty	Part Number	Description
X	D022-716-011	CARGO MIRROR INSTALLATION
2	D1048 /	Clamp
2	D1049	Saddle
1	D2010-104	Arm
1	D2011-101	Mirror
1	*D3014-1	Locknut
1	D3244-041	Bracket
4	ALS7-1032-130	Insert (or AKS7-1032-130, AKS4-1032-130, ALS4-1032-130)
4	AN3-4A	Bolt
4	AN526C1032R10	Screw (or AN526-1032R10)
4	AN960JD10L	Washers
1	*AN960JD416L	Washer

* PARTS ARE INCLUDED WITH D2011-101 MIRROR

• COPYRIGHT © 2004 BY DART AEROSPACE LTD •
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Revision: A

Date: 04.01.20